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Drechslera, Fusariella, Coniochaeta & Pyricularia spp. nov. from soil in China

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Abstract—Four new species from soil in China—*Drechslera elliptica*, *Fusariella verrucosa*, *Coniochaeta xinjiangensis*, and *Pyricularia korlaensis*—are described, illustrated, and compared morphologically with similar species. The type specimens (= dried cultures) and living cultures are deposited in the Herbarium of Shandong Agricultural University: Plant Pathology (HSAUP).

Key words—anamorphic fungi, morphology, taxonomy

Introduction

During a survey of soil dematiaceous hyphomycete diversity in arid and semi-arid areas of northwestern China, *Drechslera elliptica*, *Fusariella verrucosa*, *Coniochaeta xinjiangensis*, and *Pyricularia korlaensis* were obtained as undescribed species. The morphological characteristics of the fungi cultured on potato dextrose agar (PDA) are described. Specimens and living cultures are conserved in the Herbarium, Department of Plant Pathology, Shandong Agricultural University, Taian, China (HSAUP).

Drechslera elliptica H.F. Wang & T.Y. Zhang, **sp. nov.** Fig. 1

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Differs from *Drechslera sivanesanii* by its larger (especially wider) conidia.

§ Y.L. Jiang and Y.M. Wu contributed equally to this work.

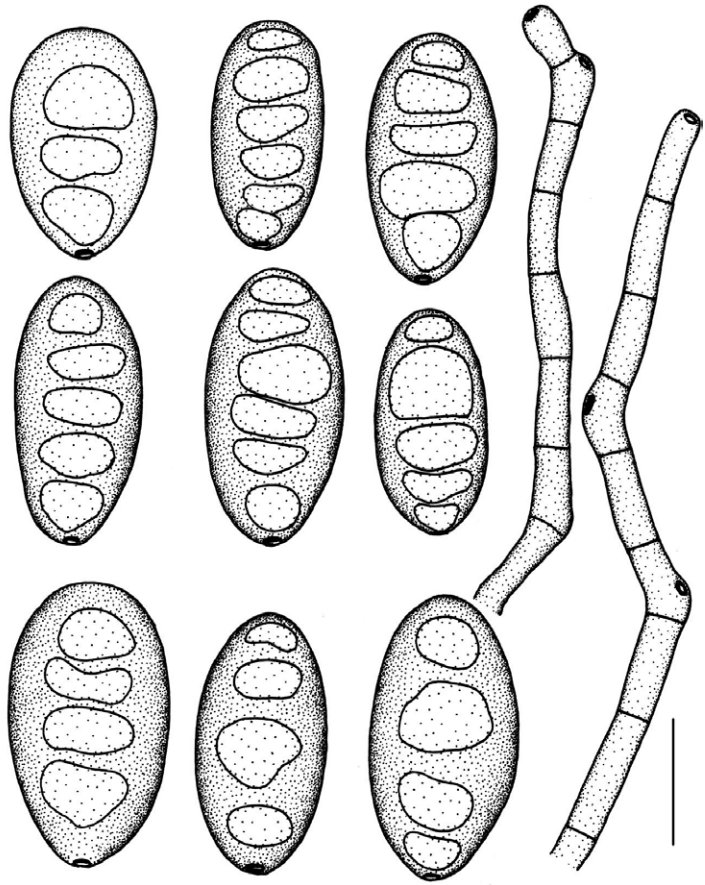

Fig. 1. *Drechslera elliptica* (ex holotype HSAUP II_{06}5157). Conidia and conidiophores. Scale bar = 25 μm.

Type: China, Qinghai Province, from a shore soil of Qinghai Lake, 16 August 2006, H.F. Wang (**Holotype**, HSAUP II_{06}5157).

Etymology: in reference to the ellipsoidal conidia.

Colonies on PDA effuse, pulvinate, often raised in the middle, velvety, growing moderately, reaching 4–7 cm diam. in 2 weeks at 25 °C. Conidiophores solitary, straight or slightly flexuous, unbranched or occasionally producing 2–3 short branches in the upper part, pale yellowish brown, smooth, 150 μm long or more, 7–8.5 μm diam. Conidia straight, broadly ellipsoidal or ovoid, broadest in the middle, 3–4-pseudoseptate, brown, smooth, 45–58 × 25–32 μm, L/W = 1.8 ± 0.1.

Comments: In conidial morphology, *Drechslera elliptica* resembles *D. sivanesanii* Manohar. & V.R.T. Reddy, which differs by its smaller (especially narrower or more slender) conidia (43–55 × 18.5–22 μm, L/W = 2.5 ± 0.1; Manoharachary & Reddy 1983).

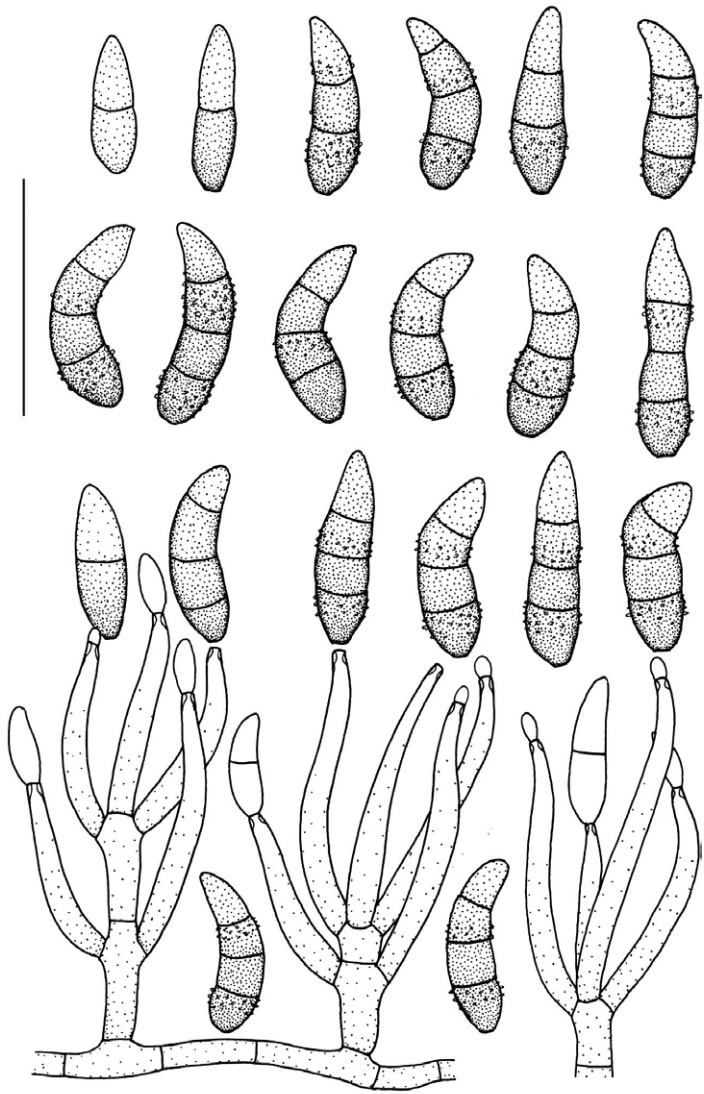

Fig. 2. *Fusariella verrucosa* (ex holotype HSAUP II_{05}2504). Conidia, conidiophores, and phialides. Scale bar = 25 μm.

Fusariella verrucosa J.H. Kong & T.Y. Zhang, **sp. nov.** Fig. 2

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Differs from *Fusariella aegyptiaca* and *F. concinna* by its smooth phialides, and wider, often curved, verruculose conidia.

Type: China, Gansu Province, Dunhuang County, from an orchard soil, 12 July 2005, J.H. Kong (**Holotype**, HSAUP $II_{05}2504$).

Etymology: in reference to the verrucose conidia.

Colonies on PDA slow-growing, effuse, thin, hyaline, finally blackish brown, sporulation zone blue green to dark green, often wrinkled and zonate. Hyphae hyaline, septate, branched, smooth, 1–2.5 µm diam. Conidiophores arise on vegetative hyphae, hyaline, lateral, straight or flexuous, branched, smooth, 1–3 septate, 25–43.5 × 2.5–3 µm. Phialides borne apically or laterally below the septa of the conidiophore, hyaline, smooth, cylindrical, tapering slightly towards the apex, 15.5–34 × 2–3 µm. Conidia fusoid, obclavate, pointed at the apex, straight or curved, greenish brown to dark brown, verruculose, 3-septate, slightly constricted at septa, 15.5–24 × 4–6.3 µm.

Comments: *Fusariella verrucosa* resembles *F. aegyptiaca* Mouch. and *F. concinna* (Syd.) S. Hughes in conidial morphology and size. However, *F. aegyptiaca* differs in its verruculose phialides and conidia that are seldom curved and with the basal cell often swollen to 7–9 µm (Ellis 1976); *F. concinna* is distinguished by its smooth and narrower conidia (16–22 × 3.5–4 µm; Hughes 1949).

Coniochaeta xinjiangensis J.H. Kong & T.Y. Zhang, **sp. nov.** Fig. 3

MycoBank MB 822522

Differs from *Coniochaeta mutabilis* by its pale brown, obovate to ellipsoidal, and wider conidia.

Type: China, Xinjiang Uygur Autonomous Region, Urumqi City, from a park soil, 17 July 2005, J.H. Kong (**Holotype**, HSAUP II_{052735}).

Etymology: in reference to the region where the holotype was collected.

Colonies on PDA effuse, greyish brown, velvety, growing slowly, reaching a diameter of 3–5 cm in 2 weeks at 25 °C. Mycelium superficial and immersed; hyphae brown, smooth, septate, sometimes thick-walled, branched, 1.8–3 µm wide, often forming ropes. Phialides solitary, born laterally and directly from aerial hyphae, lageniform with more or less inflated middle part, collarettes inconspicuous, pale brown to brown, smooth, 1.5–9.5 × 1.5–4 µm. Conidia obovate, broadly obovate to ellipsoidal, unicellular, truncated at the base, smooth, pale brown, 4–9 × 2.5–4 µm. Chlamydospores sometimes present, thick-walled, obovate, dark brown, smooth.

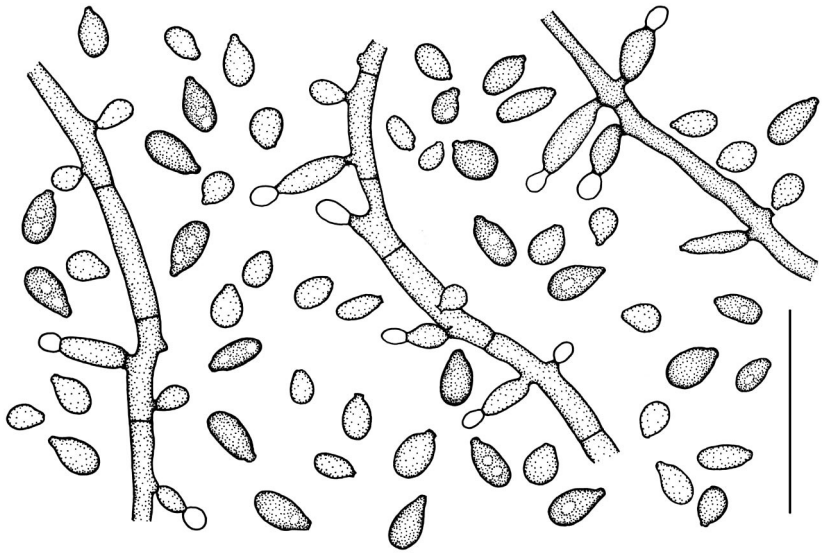

Fig. 3. *Coniochaeta xinjiangensis* (ex holotype HSAUP $II_{05}2735$). Conidia, hyphae, and phialides. Scale bar = 25 μm.

Comments: Species described in the genera *Coniochaeta* (based on sexual morphs) and *Lecythophora* (based on asexual morphs) are considered to be congeneric. Under the "one fungus : one name" principle, the older name *Coniochaeta* has been recommended as the correct name for the holomorphic genus (Réblová et al. 2016), and all nine described *Lecythophora* species have been recombined in *Coniochaeta* (Khan et al. 2013).

In producing flask-shaped phialides and chlamydospores *C. xinjiangensis* is similar to *C. mutabilis* Z.U. Khan et al., which differs in its hyaline, subcylindrical to cylindrical, and narrower (1.8–2.5 μm) conidia (De Hoog 2000).

Pyricularia korlaensis J.H. Kong & T.Y. Zhang, **sp. nov.** Fig. 4

MycoBank MB 820186

Differs from *Pyricularia caffra* by its much smaller conidia.

Type: China, Xinjiang Uygur Autonomous Region, Korla, from a lawn soil, 19 July 2005, J.H. Kong (**Holotype**, HSAUP II_{052571}).

Etymology: in reference to the city where the holotype was collected.

Colonies on PDA effuse, thinly velvety, raised in the centre, pale olivaceous brown with a white margin, rather slow-growing, reaching a diameter of 2–3 cm in 3 weeks at 25 °C. Conidiophores macronematous, mononematous,

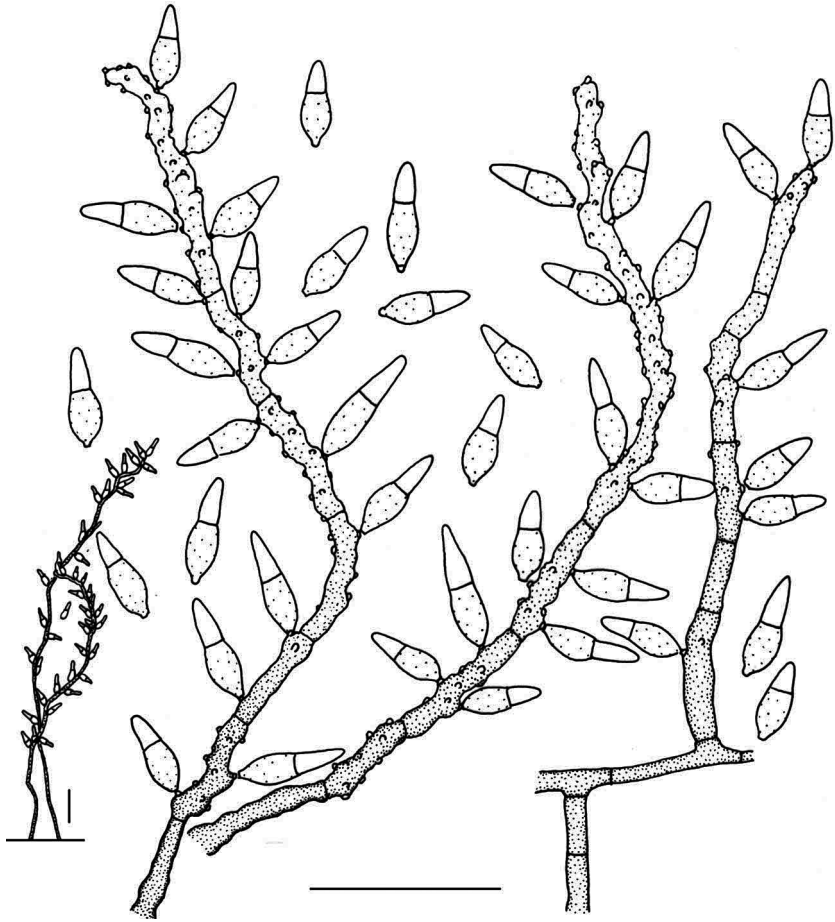

Fig. 4. *Pyricularia korlaensis* (ex holotype HSAUP $II_{05}2571$). Conidia, conidiophores, and denticles. Scale bars = 25 μm.

unbranched, straight or flexuous, solitary, septate, smooth, geniculate, 30–250 × 2.5–3.5 μm, with denticles towards the apex. Conidiogenous cells polyblastic, terminal, geniculate, sympodial, cylindrical, denticulate. Conidia solitary, acropleurogenous, 1-septate, narrowly ovate to obpyriform, sometimes constricted at the septum, pale brown, 7.5–17.5 × 3–4.5 μm.

Comments: Owing to producing bicellular and narrowly ovate to obpyriform conidia, *Pyricularia korlaensis* is most close to *P. caffra* Matsush., which differs by its much larger conidia (20–31.5 × 9–9.5 μm; Matsushima 1996) .

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Literature cited

De Hoog GS. 2000. Atlas of clinical fungi. 1126 p.

Ellis MB. 1976. More dematiaceous hyphomycetes. Commonwealth Mycological Institute, Kew. Surrey, England. 507 p.

Gams W, McGinnis MR. 1983. *Phialemonium*, a new anamorph genus intermediate between *Phialophora* and *Acremonium*. Mycologia 75(6): 977–987. https://doi.org/10.2307/3792653

Hughes SJ. 1949. Studies on micro-fungi, I. The genus *Fusariella* Saccardo. Mycological Papers 28. 11 p.

Khan Z, Gené J, Ahmad S, Cano J, Al-Sweih N, Joseph L, Chandy R, Guarro J. 2013. *Coniochaeta polymorpha*, a new species from endotracheal aspirate of a preterm neonate, and transfer of *Lecythophora* species to *Coniochaeta*. Antonie van Leeuwenhoek 104(2): 243–252. https://doi.org/10.1007/s10482-013-9943-z

Manoharachary C, Reddy VRT. 1983. A new species of *Drechslera* Ito from India. Current Science 52(21): 1026–1027.

Matsushima T. 1996. Matsushima Mycological Memoirs 9: 1–30.

Réblová M, Miller AN, Rossman AY, Seifert KA, Crous PW, Hawksworth DL, et al. 2016. Recommendations for competing sexual–asexually typified generic names in *Sordariomycetes* (except *Diaporthales*, *Hypocreales*, and *Magnaporthales*). IMA Fungus 7(1): 131–153. https://doi.org/10.5598/imafungus.2016.07.01.08